IN THE CLAIMS:

The following is a complete listing of the claims, reflects all changes currently being made thereto, and replaces all earlier versions and listings:

1. (currently amended): An electron-emitting device comprising:

a cathode electrode;

a layer electrically connected to the cathode electrode; and

a plurality of particles, each comprising as a main component a material which has resistivity lower than resistivity of a material of the layer, wherein

the plurality of particles are arranged in the layer[[;]], and

a density of the particles in the layer is $1 \times 10^{14}/cm^3$ or more and $5 \times 10^{18}/cm^3$ or less.

2. (currently amended): An electron-emitting device comprising:

a cathode electrode;

a layer electrically connected to the cathode electrode; and

a plurality of particles, each comprising as a main component a material, which has resistivity lower than resistivity of a material of the layer, wherein[[,]]

the plurality of particles are arranged in the layer[[;]], and

a concentration of a main element of the particles with respect to a main element of the layer is 0.001 atm% or more and 1.5 atm% or less.

3. (currently amended): An electron-emitting device comprising:

a cathode electrode;

a layer electrically connected to the cathode electrode; and

a plurality of particles, each comprising as a main component a material which has resistivity lower than resistivity of a material of the layer, wherein

the plurality of particles are arranged in the layer[[;]],

a density of the particles in the layer is $1 \times 10^{14}/cm^3$ or more and $5 \times 10^{18}/cm^3$ or less[[;]], and

a concentration of a main element of the particles with respect to a main element of the layer is 0.001 atm% or more and 1.5 atm% or less.

4. (currently amended): An electron-emitting device comprising:

a cathode electrode;

a layer which is arranged on the cathode layer and contains carbon as a main component; and

at least two particles which are arranged so as to be adjacent to each other in the layer and comprises metal as a main component, wherein

one of the adjacent two particles is arranged to be nearer to the cathode electrode than the other particle[[;]], and

the metal is [[metal]] selected from the group consisting of Co, Ni, and Fe.

5. (currently amended): An electron-emitting device comprising:

a cathode electrode; and

a layer connected to the cathode electrode, wherein

a plurality of groups of particles, each group being constituted by at least two particles adjacent to each other, are arranged in the layer[[;]],

each of the particles comprises as a main component a material which has resistivity lower than resistivity of a material of the layer,

the adjacent two particles are arranged in a range of 5 nm or less[[;]],

one of the adjacent two particles is arranged to be nearer to the cathode electrode than the other particle[[;]], and

the plurality of groups of particles are arranged apart from each other by a distance equal to an average film thickness of the layer or more.

6. (currently amended): An electron-emitting device comprising:

a cathode electrode; and

a layer connected to the cathode electrode, wherein

a plurality of groups of particles, each group being constituted by at least two particles which comprise metal as a main component and are adjacent to each other, are arranged in the layer[[;]],

the layer comprises as a main component a material which has resistivity higher than resistivity of the particles[[;]],

the adjacent two particles are arranged in a range of 5 nm or less[[;]], and

one of the adjacent two particles is arranged to be nearer to the cathode electrode than the other particle.

7. (currently amended): An electron-emitting device comprising:

a cathode electrode; and

a layer which is connected to the cathode electrode and comprises carbon as a main component, wherein

a plurality of groups of particles, each group being constituted by at least two particles which comprise metal as a main component and are adjacent to each other, are arranged in the layer[[;]],

the plurality of groups of particles are arranged apart from each other by a distance equal to an average film thickness of the layer or more[[;]], and

a concentration of the metal in the carbon layer is lower on a surface side of the carbon layer than on the cathode electrode side.

8. (currently amended): An electron-emitting device comprising:

a cathode electrode; and

a layer which is connected to the cathode electrode and comprises carbon as a main component, wherein

a plurality of groups of particles constituted by at least two particles, which comprise metal as a main component, being adjacent to each other are arranged in the layer,

one of the adjacent two particles is arranged on the cathode electrode than the other particle[[;]], and

graphene is included between adjacent particles among at least part of the plurality of particles.

9. (original): An electron-emitting device comprising:

a cathode electrode;

a layer which is electrically connected to the cathode electrode and comprises carbon as a main component; and

a plurality of conductive particles arranged in the layer, each particle comprising carbon as a main component, wherein

the layer comprising carbon as a main component contains a hydrogen element of 0.1 atm% or more with respect to a carbon element.

10. (original): An electron-emitting device according to claim 9, wherein the layer comprising carbon as a main component contains a hydrogen element of 1 atm% or more with respect to the carbon element.

11. (original): An electron-emitting device according to claim 10, wherein the layer comprising carbon as a main component contains a hydrogen element of 20 atm% or less with respect to the carbon element.

12. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 11~~, wherein surface unevenness of the layer is smaller than 1/10 of its film thickness in rms.

13. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 3, 5, and 6~~, wherein the layer comprises carbon as a main component.

14. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 4, ~~7, 8, and 13,~~ wherein an average concentration of hydrogen with respect to carbon in the layer is 0.1 atm% or more.

15. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 4, ~~7, 8, 9, and 13,~~ wherein the layer comprising carbon as a main component has an $sp^3$ bonding.

16. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 3, 5, and 9~~, wherein the particles comprise metal as a main component.

17. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~6 to 8 and 16~~, wherein the metal is metal selected from Co, Ni, and Fe.

18. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~1 to 3, 5, and 9~~, wherein the particles comprise monocrystalline metal as a main component.

19. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~1 to 9~~, wherein the particles have an average particle diameter of 1 nm or more to 10 nm or less.

20. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~1 to 9~~, wherein the layer has a thickness of 100 nm or less.

21. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~1 to 4 and 7 to 9~~, wherein at least two adjacent particles among the plurality of particles are arranged 5 nm or less apart from each other.

22. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~4 to 9~~, wherein a density of the particles in the layer is $1 \times 10^{14}/cm^3$ or more and $5 \times 10^{18}/cm^3$ or less.

23. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] ~~1 to 9~~, wherein a density of the particles in the layer is $1 \times 10^{15}/cm^3$ or more and $5 \times 10^{17}/cm^3$ or less.

24. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 4 ~~to 9~~, wherein a concentration of a main element of the particles with respect to a main element of the layer is 0.001 atm% or more and 1.5 atm% or less.

25. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 9~~, wherein a concentration of a main element of the particles with respect to a main element of the layer is 0.05 atm% or more and 1 atm% or less.

26. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 3 and 9~~, wherein:

the plurality of particles are arranged dispersedly in the layer as a plurality of groups of particles, each group being constituted by at least two adjacent particles[[;]],

one of the two adjacent particles are placed to be nearer to the cathode electrode than the other particle[[;]], and

the plurality of groups of particles are arranged apart from each other by a distance equal to an average film thickness of the layer or more.

27. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 26~~, wherein the surface of the layer is terminated with hydrogen.

28. (currently amended): An electron-emitting device according to ~~any one of~~ claim[[s]] 1 ~~to 27~~, further comprising:

an insulating film which is arranged on the cathode electrode and has a first opening; and

a gate electrode which is arranged on the insulting film and has a second opening, wherein[[:]]

the first opening and the second opening communicate with each other[[;]], and

the layer is exposed in the first opening.

29. (currently amended): An electron source, wherein a plurality of the electron-emitting devices according to ~~any one of~~ claim[[s]] 1 ~~to 28~~ are arranged.

30. (original): An image display apparatus, characterized by comprising the electron source according to claim 29 and a light-emitting member which emits light by being irradiated with electrons.

31. - 40. (canceled).

41. (new): An electron-emitting device comprising:

a cathode electrode; and

a layer electrically disposed on the cathode electrode, wherein

a plurality of particle groups comprising at least two adjacent particles are discretely distributed in the layer,

the particle comprises as a main component a material which has resistivity lower than resistivity of a material of the layer,

one of the adjacent particles is closer to the cathode electrode rather than the other(s) of the adjacent particles, and

the adjacent particles are disposed within a distance of 5nm.

42. (new): An electron-emitting device according to claim 41, wherein the layer comprises carbon as a main component.

43. (new): An electron-emitting device according to claim 42, wherein the layer contains hydrogen.

44. (new): An image display apparatus comprising a plurality of electron-emitting devices and a light emitting member emitting light by irradiation with an electron emitted from the electron-emitting device, wherein the each of the electron-emitting devices is the electron-emitting devices according to claim 41.

45. (new): An electron-emitting device comprising:

a cathode electrode;

a layer electrically connected to the cathode electrode containing carbon as a main component; and

a plurality of particles arranged in the layer containing carbon as a main component, wherein

the layer containing carbon as a main component contains hydrogen of 0.1-20 atm% at a ratio to the carbon.

46. (new): An image display apparatus comprising a plurality of electron-emitting devices and a light emitting member emitting light by irradiation with an electron emitted from the electron-emitting device, wherein each of the electron-emitting devices is an electron-emitting device according to claim 45.